Course Prerequisites
BIOL 2060.03 and OCEA 2000.06/OCEA2001.03 and OCEA2002.03

Course Objectives/Learning Outcomes
Knowledge of the environmental conditions in the deep-sea and at chemosynthesis-based habitats
Ecosystem characteristics such as species composition and abundance, diversity, carbon flux
Knowledge of ecological processes such reproduction, dispersal, recruitment, competition and predation in the deep-sea
Measurement of spatial and temporal patterns in abundance
Team work
Scientific presentations
Scientific writing
Assessment of the scientific literature

Course Materials

The course does not have a website but is on Brightspace

Course Assessment
Include dates and times for all tests, quizzes and exams, including lab exams. If known, include due dates for assignments. Note any scheduled elements held outside of class time (e.g., mid-terms, field trips).

NOTES: (1) An exemption is required for 1000 to 3000 level courses if you are not planning to hold a final exam scheduled by the Registrar’s Office. Submit your syllabus along with your request (and reason for the request) to the Assistant Dean (scieasst@dal.ca) at least 2 weeks prior to the start of classes.

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight (% of final grade)</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tests/quizzes (list)</td>
<td>Test 1 (20%)</td>
<td>28-10-2019</td>
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<tr>
<td></td>
<td>Test 2 (20%)</td>
<td>2-12-2019</td>
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<tr>
<td>Final exam</td>
<td>N/A</td>
<td>(Scheduled by Registrar)</td>
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<tr>
<td>Assignments (list)</td>
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Other course requirements
- Oral presentation 20% Throughout the term
- Term paper 30% 18-11-2019
- Participation in discussions 10% Throughout the term

Conversion of numerical grades to Final Letter Grades follows the Dalhousie Common Grade Scale
- A+ (90-100)
- B+ (77-79)
- C+ (65-69)
- D (50-54)
- A (85-89)
- B (73-76)
- C (60-64)
- F (<50)
- A- (80-84)
- B- (70-72)
- C- (55-59)

Course Policies
Penalty for late submission of paper, 10% per day

University policy on plagiarism and cheating will be strictly enforced. You do have the option of submitting a Student Declaration of Absence form in this course (See link below for more information). The form is posted on Brightspace and should be submitted by e-mail to the course Instructor. Please note, that submission of the form does not provide an automatic exemption from any academic requirements that were missed or late during an absence. Any alternate coursework arrangements for missed or late academic requirements are at the discretion of this course’s instructor(s).

Course Content
- Part I: The deep-sea environment
  - Physical and chemical properties
  - The benthic boundary and nepheloid layers
  - Vertical patterns in abundance
  - Vertical patterns in diversity
  - Vertical zonation in community structure
  - Biogeography of the deep sea
  - Seasonality, episodicity
  - Food resources, energetics and metabolism
  - Growth, reproduction (timing, behaviour, success)
  - Larval biology, dispersal and recruitment
Example habitats: Seamounts
Example habitats: Abyssal plains
Gulf of Maine Discovery corridor: a case study

Part II: Hydrothermal vents and cold seeps: special habitats in the deep sea
Geological formation, physical and chemical environment
Energy flow
Food web structure
Faunal physiological adaptations
Spatial distribution of ecological assemblages
Reproduction and dispersal
Mariana Forearc – a case study
Cold seeps: Geological formation and chemical environment, energy flow, food webs
Anthropogenic impacts on the deep sea